

Interaction Design Project: Final Report

Group Members:

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Website: Fragrance Net

Website URL: <https://www.fragrancenet.com/>

Axure Prototype: <https://7fql27.axshare.com/>

Participants videos: <https://drive.google.com/drive/folders/1-IJnSSvJSuTyGyqjG40zQFla7Puq8G0q?usp=sharing>

Executive Summary

The website we chose to recreate is the FragranceNet website, which is an e-commerce website for purchasing beauty products. The original website violated several laws like Hick's law, Miller's law, etc. Miller's law states that people can only keep a limited number of items in their working memory. Displaying discount percentages instead of prices might overwhelm users with information, making it harder for them to decide. Hick's law states that the time it takes for a person to make a decision increases with the number and complexity of choices. The separation of the cart and search bar while scrolling violates the principle of keeping essential functions easily accessible, potentially slowing down the decision-making process. Also, placing the "help" button in an unconventional location with small font size and lack of standard product sorting option (sorting by price) creates a non-intuitive experience for users familiar with typical e-commerce interfaces. Our redesigned prototype overcame these flaws, in addition to improved aesthetics.

The metrics we used for our analysis are:

1. Time on task
2. Time-based efficiency
3. Effectiveness
4. User Satisfaction

Method

Who we tested

This test was conducted using 12 participants (6 on the original website and 6 on the prototype). The demographic characteristics of the participants are given below:

Audience Type	
Computer	8
Science/Engineering Students	
Construction	2
Management Students	
Software Engineers	2
TOTAL (participants)	12

Computer Usage	
0 to 10 hrs. wk.	0
11 to 25 hrs. wk.	4
26+ hrs. wk.	8
TOTAL (participants)	12

Age	
18-25	7
26-39	5
40-59	0
60-74	0
TOTAL (participants)	12

Gender	
Women	4
Men	8
TOTAL (participants)	12

What participants did

We explained the outline of this test with the participants and had them fill out a demographics survey form before starting the test. The session included 11 tasks, each addressing the specific issue with the original website. Some of these include locating the search and the navigation bar, sorting products, ease of readability of the description, adding the product to the cart, and checkout process. Once the session was completed, we provided them with a post session survey related to their experience with the site and the overall usability.

TASKS:

Task 1 - Locate search bar and search for product: User looks for the search bar and searches for “Escape Cologne”.

Task 2 - Add first product to the bag: Select the first product and add the selected “Escape Cologne” product to the bag.

Task 3 - Locate navigation bar: User should locate the navigation bar, hover over haircare, and select “Conditioners”.

Task 4 - Sort items by price: Users should be able to sort the products by price, if there’s no such option, they can proceed to the next task.

Task 5 - Add a second product to the bag: User should select the first conditioner product after sorting by price, select the product, and add it to the bag.

Task 6 - Locate and select the shopping cart, and activate coupon: User should be able to locate the shopping cart, and then activate/enter a coupon code for the products in the cart.

Task 7 - Checkout as guest: User should proceed to checkout as guest.

Task 8 - Submit forms and check how easy it is to resolve errors: User enters their details during checkout, and if they encounter any issues, check how fast they can resolve it, and if they’re stuck, they should be able to locate the “Help” button.

Task 9 - Locate the Help button: User should be able to locate the help button and see if there is any information that helps them with their previous errors.

Task 10 - Locate and select Subscription Club: The user should go back to homepage, and locate and select the “Subscription Club” option and proceed to that option.

Task 11 - Subscription Club page: User selects their product of choice and adds it to their list of subscriptions.

Participants / Tasks	Task 1			Task 2			Task 3			Total Task Time
	Start Time	End Time	Task Time	Start Time	End Time	Task Time	Start Time	End Time	Task Time	
<u>Maneesh Sistla</u>	00:09	00:20	00:11	00:21	00:54	00:33	01:00	01:16	00:16	01:00
<u>Uday Shahapur</u>	00:17	00:30	00:13	00:31	00:50	00:19	00:55	01:16	00:21	00:53
<u>Smaran Sandri</u>	00:16	00:30	00:14	00:31	01:33	01:02	01:34	01:58	00:24	01:40
<u>Jaya Venkatesh</u>	00:17	00:38	00:21	00:39	01:22	00:43	01:23	01:39	00:16	01:20
<u>Harshit Pandey</u>	00:23	00:35	00:12	00:36	01:04	00:28	01:05	01:28	00:23	01:03
<u>Vishesh Tayal</u>	00:15	00:28	00:13	00:29	00:56	00:27	00:57	01:23	00:26	01:06

Participants / Tasks	Task 4			Task 5			Task 6			Total Task Time
	Start Time	End Time	Task Time	Start Time	End Time	Task Time	Start Time	End Time	Task Time	
<u>Maneesh Sistla</u>	01:18	01:45	00:27	01:46	02:03	00:17	02:04	02:33	00:29	01:13
<u>Uday Shahapur</u>	01:16	01:37	00:21	01:38	01:55	00:17	01:56	02:17	00:21	00:59
<u>Smaran Sandri</u>	01:59	02:30	00:31	02:30	02:48	00:18	02:49	03:16	00:27	01:16
<u>Jaya Venkatesh</u>	01:40	02:04	00:24	02:05	02:29	00:24	02:30	02:53	00:23	01:11
<u>Harshit Pandey</u>	01:29	01:57	00:28	01:58	02:11	00:13	02:12	02:39	00:27	01:08
<u>Vishesh Tayal</u>	01:24	01:55	00:31	01:56	02:09	00:13	02:10	02:48	00:38	01:22

<u>Participants</u> <u>/ Tasks</u>	Task 7			Task 8			Task 9			<u>Total</u> <u>Task</u> <u>Time</u>
	<u>Start</u> <u>Time</u>	<u>End</u> <u>Time</u>	<u>Task</u> <u>Time</u>	<u>Start</u> <u>Time</u>	<u>End</u> <u>Time</u>	<u>Task</u> <u>Time</u>	<u>Start</u> <u>Time</u>	<u>End</u> <u>Time</u>	<u>Task</u> <u>Time</u>	
<u>Maneesh</u> <u>Sistla</u>	<u>02:34</u>	<u>02:42</u>	<u>00:08</u>	<u>02:42</u>	<u>03:22</u>	<u>00:40</u>	<u>03:23</u>	<u>03:52</u>	<u>00:19</u>	<u>01:07</u>
<u>Uday</u> <u>Shahapur</u>	<u>02:17</u>	<u>02:32</u>	<u>00:15</u>	<u>02:32</u>	<u>03:02</u>	<u>00:30</u>	<u>03:03</u>	<u>04:05</u>	<u>01:02</u>	<u>01:47</u>
<u>Smaran</u> <u>Sandri</u>	<u>03:17</u>	<u>03:25</u>	<u>00:08</u>	<u>03:25</u>	<u>03:58</u>	<u>00:33</u>	<u>03:59</u>	<u>04:58</u>	<u>00:59</u>	<u>01:40</u>
<u>Jaya</u> <u>Venkatesh</u>	<u>02:54</u>	<u>02:58</u>	<u>00:04</u>	<u>02:59</u>	<u>03:48</u>	<u>00:49</u>	<u>03:49</u>	<u>04:46</u>	<u>00:57</u>	<u>01:50</u>
<u>Harshit</u> <u>Pandey</u>	<u>02:40</u>	<u>02:54</u>	<u>00:14</u>	<u>02:55</u>	<u>03:47</u>	<u>00:52</u>	<u>03:48</u>	<u>04:54</u>	<u>01:06</u>	<u>02:12</u>
<u>Vishesh</u> <u>Tayal</u>	<u>02:49</u>	<u>03:11</u>	<u>00:22</u>	<u>03:12</u>	<u>03:42</u>	<u>00:30</u>	<u>03:43</u>	<u>05:09</u>	<u>01:26</u>	<u>02:18</u>

<u>Participants</u> <u>/ Tasks</u>	Task 10			Task 11			<u>Total</u> <u>Task</u> <u>Time</u>
	<u>Start</u> <u>Time</u>	<u>End</u> <u>Time</u>	<u>Task</u> <u>Time</u>	<u>Start</u> <u>Time</u>	<u>End</u> <u>Time</u>	<u>Task</u> <u>Time</u>	
<u>Maneesh</u> <u>Sistla</u>	<u>03:53</u>	<u>04:09</u>	<u>00:16</u>	<u>04:10</u>	<u>04:44</u>	<u>0:34</u>	<u>00:50</u>
<u>Uday</u> <u>Shahapur</u>	<u>04:05</u>	<u>04:18</u>	<u>00:13</u>	<u>04:19</u>	<u>04:41</u>	<u>00:22</u>	<u>00:35</u>
<u>Smaran</u> <u>Sandri</u>	<u>04:59</u>	<u>05:16</u>	<u>00:17</u>	<u>05:17</u>	<u>05:49</u>	<u>00:32</u>	<u>00:49</u>
<u>Jaya</u> <u>Venkatesh</u>	<u>04:47</u>	<u>05:04</u>	<u>00:17</u>	<u>05:05</u>	<u>05:35</u>	<u>00:30</u>	<u>00:47</u>
<u>Harshit</u> <u>Pandey</u>	<u>04:55</u>	<u>05:11</u>	<u>00:16</u>	<u>05:12</u>	<u>05:39</u>	<u>00:27</u>	<u>00:43</u>
<u>Vishesh</u> <u>Tayal</u>	<u>05:10</u>	<u>05:26</u>	<u>00:16</u>	<u>05:27</u>	<u>06:07</u>	<u>00:40</u>	<u>00:56</u>

Table 1: Original website Task Times

Participants / Tasks	Task 1			Task 2			Task 3			Total Task Time
	Start Time	End Time	Task Time	Start Time	End Time	Task Time	Start Time	End Time	Task Time	
<u>Akhilesh Shankar</u>	<u>0:28</u>	<u>0:40</u>	<u>0:12</u>	<u>0:40</u>	<u>1:08</u>	<u>0:28</u>	<u>1:08</u>	<u>1:21</u>	<u>0:13</u>	<u>0:53</u>
<u>Ankith Aralehalli</u>	<u>0:29</u>	<u>0:41</u>	<u>0:12</u>	<u>0:41</u>	<u>0:58</u>	<u>0:17</u>	<u>0:58</u>	<u>1:08</u>	<u>0:10</u>	<u>0:39</u>
<u>Naman Nandan</u>	<u>0:30</u>	<u>0:48</u>	<u>0:18</u>	<u>0:54</u>	<u>1:04</u>	<u>0:10</u>	<u>1:13</u>	<u>1:26</u>	<u>0:13</u>	<u>0:41</u>
<u>Akash Nair</u>	<u>0:39</u>	<u>0:58</u>	<u>0:19</u>	<u>1:00</u>	<u>1:08</u>	<u>0:08</u>	<u>1:15</u>	<u>1:22</u>	<u>0:07</u>	<u>0:44</u>
<u>Dhruv Vohra</u>	<u>0:27</u>	<u>0:48</u>	<u>0:21</u>	<u>0:50</u>	<u>1:06</u>	<u>0:16</u>	<u>1:08</u>	<u>1:22</u>	<u>0:14</u>	<u>0:51</u>
<u>Chetan Dandolu</u>	<u>0:39</u>	<u>1:00</u>	<u>0:21</u>	<u>1:02</u>	<u>1:23</u>	<u>0:21</u>	<u>1:27</u>	<u>1:39</u>	<u>0:12</u>	<u>0:54</u>

Participants / Tasks	Task 4			Task 5			Task 6			Total Task Time
	Start Time	End Time	Task Time	Start Time	End Time	Task Time	Start Time	End Time	Task Time	
<u>Akhilesh Shankar</u>	<u>1:21</u>	<u>1:39</u>	<u>0:18</u>	<u>1:39</u>	<u>1:58</u>	<u>0:19</u>	<u>1:58</u>	<u>2:42</u>	<u>0:44</u>	<u>1:21</u>
<u>Ankith Aralehalli</u>	<u>1:08</u>	<u>1:22</u>	<u>0:14</u>	<u>1:22</u>	<u>1:53</u>	<u>0:31</u>	<u>1:53</u>	<u>2:23</u>	<u>0:30</u>	<u>1:15</u>
<u>Naman Nandan</u>	<u>1:38</u>	<u>1:50</u>	<u>0:12</u>	<u>2:05</u>	<u>2:11</u>	<u>0:06</u>	<u>2:16</u>	<u>2:35</u>	<u>0:19</u>	<u>0:37</u>
<u>Akash Nair</u>	<u>1:25</u>	<u>1:36</u>	<u>0:11</u>	<u>1:40</u>	<u>1:47</u>	<u>0:07</u>	<u>1:51</u>	<u>2:16</u>	<u>0:25</u>	<u>0:43</u>
<u>Dhruv Vohra</u>	<u>1:24</u>	<u>1:36</u>	<u>0:12</u>	<u>1:46</u>	<u>1:59</u>	<u>0:13</u>	<u>2:00</u>	<u>2:17</u>	<u>0:17</u>	<u>0:42</u>

<u>Chetan Dandolu</u>	<u>1:40</u>	<u>1:47</u>	<u>0:07</u>	<u>1:50</u>	<u>2:07</u>	<u>0:17</u>	<u>2:09</u>	<u>2:38</u>	<u>0:29</u>	<u>0:53</u>
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<u>Participants / Tasks</u>	<u>Task 7</u>			<u>Task 8</u>			<u>Task 9</u>			<u>Total Task Time</u>
	<u>Start Time</u>	<u>End Time</u>	<u>Task Time</u>	<u>Start Time</u>	<u>End Time</u>	<u>Task Time</u>	<u>Start Time</u>	<u>End Time</u>	<u>Task Time</u>	
<u>Akhilesh Shankar</u>	<u>2:42</u>	<u>3:01</u>	<u>0:19</u>	<u>3:01</u>	<u>3:54</u>	<u>0:53</u>	<u>4:39</u>	<u>4:55</u>	<u>0:16</u>	<u>1:28</u>
<u>Ankith Aralehalli</u>	<u>2:23</u>	<u>2:43</u>	<u>0:20</u>	<u>2:43</u>	<u>3:38</u>	<u>0:55</u>	<u>4:19</u>	<u>4:31</u>	<u>0:12</u>	<u>1:27</u>
<u>Naman Nandan</u>	<u>2:46</u>	<u>3:07</u>	<u>0:21</u>	<u>3:13</u>	<u>4:02</u>	<u>0:49</u>	<u>4:34</u>	<u>4:38</u>	<u>0:04</u>	<u>1:04</u>
<u>Akash Nair</u>	<u>2:20</u>	<u>2:37</u>	<u>0:17</u>	<u>2:42</u>	<u>3:29</u>	<u>0:47</u>	<u>3:46</u>	<u>3:55</u>	<u>0:09</u>	<u>1:13</u>
<u>Dhruv Vohra</u>	<u>2:18</u>	<u>2:42</u>	<u>0:24</u>	<u>2:43</u>	<u>3:31</u>	<u>0:48</u>	<u>3:31</u>	<u>3:42</u>	<u>0:11</u>	<u>1:23</u>
<u>Chetan Dandolu</u>	<u>2:40</u>	<u>3:05</u>	<u>0:25</u>	<u>3:10</u>	<u>3:59</u>	<u>0:49</u>	<u>4:03</u>	<u>4:11</u>	<u>0:08</u>	<u>1:22</u>

<u>Participants / Tasks</u>	<u>Task 10</u>			<u>Task 11</u>			<u>Total Task Time</u>
	<u>Start Time</u>	<u>End Time</u>	<u>Task Time</u>	<u>Start Time</u>	<u>End Time</u>	<u>Task Time</u>	
<u>Akhilesh Shankar</u>	<u>3:54</u>	<u>4:24</u>	<u>0:30</u>	<u>4:24</u>	<u>4:39</u>	<u>0:15</u>	<u>0:45</u>
<u>Ankith Aralehalli</u>	<u>3:38</u>	<u>4:02</u>	<u>0:24</u>	<u>4:02</u>	<u>4:19</u>	<u>0:17</u>	<u>0:41</u>
<u>Naman Nandan</u>	<u>4:50</u>	<u>4:55</u>	<u>0:05</u>	<u>5:18</u>	<u>5:33</u>	<u>0:15</u>	<u>0:20</u>
<u>Akash Nair</u>	<u>4:22</u>	<u>4:27</u>	<u>0:05</u>	<u>4:35</u>	<u>4:41</u>	<u>0:06</u>	<u>0:11</u>

<u>Dhruv Vohra</u>	<u>3:43</u>	<u>4:07</u>	<u>0:24</u>	<u>4:09</u>	<u>4:29</u>	<u>0:20</u>	<u>0:44</u>
<u>Chetan Dandolu</u>	<u>4:14</u>	<u>4:36</u>	<u>0:22</u>	<u>4:45</u>	<u>5:06</u>	<u>0:21</u>	<u>0:43</u>

Table 2: Redesigned website Task Times

What metrics were collected

Time on Task

We calculated the total time it took by all participants to complete the specified task. Based on the number of participants on our test, we took the average of the time spent on completing a task. This metric gives us a comparative overview of how much time is spent by the user to complete a set of tasks on the original website and on our redesigned prototype website of FragranceNet.

Task Number	Total Time	Total Participants	Average Time on Task
Task 1	01:24	6	00:14
Task 2	03:32	6	00:35
Task 3	02:06	6	00:21
Task 4	02:42	6	00:27
Task 5	01:42	6	00:17
Task 6	02:45	6	00:27
Task 7	01:11	6	00:12
Task 8	03:54	6	00:39
Task 9	05:49	6	00:58
Task 10	01:35	6	00:16
Task 11	03:05	6	00:31
TOTAL = 11 Tasks	Σ of all Task Times = 29:45	Total Participants = 6	Total Average Task Time per Participant = 04:58

Table 3: Original website Average Time on Task

Task Number	Total Time	Total Participants	Average Time on Task
Task 1	01:43	6	00:17
Task 2	01:40	6	00:16
Task 3	01:09	6	00:11
Task 4	01:14	6	00:12
Task 5	01:33	6	00:15
Task 6	02:44	6	00:27
Task 7	02:06	6	00:21
Task 8	05:01	6	00:50
Task 9	01:00	6	00:10
Task 10	01:50	6	00:18
Task 11	01:34	6	00:16
TOTAL = 11 Tasks	Σ of all Task Times = 21:34	Total Participants = 6	Total Average Task Time per Participant = 03:36

Table 4: Prototype website Average Time on Task

Time-based Efficiency

Another metric we used to evaluate the time spent by the user on a task is the time-based efficiency. The following formula is used to calculate this particular metric -

$$\text{Time Based Efficiency} = \frac{\sum_{j=1}^R \sum_{i=1}^N \frac{n_{ij}}{t_{ij}}}{NR}$$

Where:

- **N** is the number of tasks; For our case it is **$N = 11$** for 11 tasks
- **R** is the number of users; For our case it is **$R = 6$** for 6 users
- **n_{ij}** is the result of task *i* by user *j*; if the user successfully completes the task, the $n_{ij} = 1$, if not, then $n_{ij} = 0$
- **t_{ij}** is the time spent by user *j* to complete task *i*. If the task is not successfully completed by the user, then time is measured till moment user quits the task

Original Website:

	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
User 1	$n_{ij} = 1$ $t_{ij} = 11 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 33 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 16 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 27 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 17 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 29 \text{ s}$
User 2	$n_{ij} = 1$ $t_{ij} = 13 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 19 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 21 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 21 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 17 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 21 \text{ s}$
User 3	$n_{ij} = 1$ $t_{ij} = 14 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 62 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 24 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 31 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 18 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 27 \text{ s}$
User 4	$n_{ij} = 1$ $t_{ij} = 21 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 43 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 16 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 24 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 24 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 23 \text{ s}$
User 5	$n_{ij} = 1$ $t_{ij} = 12 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 28 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 23 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 28 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 13 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 27 \text{ s}$
User 6	$n_{ij} = 1$ $t_{ij} = 13 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 27 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 26 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 31 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 13 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 38 \text{ s}$

	Task 7	Task 8	Task 9	Task 10	Task 11
User 1	$n_{ij} = 1$ $t_{ij} = 8 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 40 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 19 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 16 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 34 \text{ s}$
User 2	$n_{ij} = 1$ $t_{ij} = 15 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 30 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 62 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 13 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 22 \text{ s}$
User 3	$n_{ij} = 1$ $t_{ij} = 8 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 33 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 59 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 17 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 32 \text{ s}$
User 4	$n_{ij} = 1$ $t_{ij} = 4 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 49 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 57 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 17 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 30 \text{ s}$
User 5	$n_{ij} = 1$ $t_{ij} = 14 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 52 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 66 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 16 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 27 \text{ s}$
User 6	$n_{ij} = 1$ $t_{ij} = 22 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 30 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 86 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 16 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 40 \text{ s}$

Table 5: Time-based efficiency for the Original website

Summation of $n_{ij} / t_{ij} = 1/11 + 1/13 + 1/14 + 1/21 + 1/12 + 1/13 + 1/33 + 1/19 + 1/62 + 1/43 + 1/28 + 1/27 + 1/16 + 1/21 + 1/24 + 1/16 + 1/23 + 1/26 + 0/27 + 0/21 + 0/31 + 0/24 + 0/28 + 0/31 + 1/17 + 1/17 + 1/18 + 1/24 + 1/13 + 1/13 + 1/29 + 0/21 + 0/27 + 1/23 + 1/27 + 1/38 + 1/8 + 1/15 + 1/8 + 1/4 + 1/14 + 1/22 + 0/40 + 1/30 + 1/33 + 0/49 + 0/52 + 1/30 + 0/19 + 0/62 + 0/59 + 1/57 + 1/66 + 0/86 + 1/16 + 1/13 + 1/17 + 1/17 + 1/16 + 0/16 + 1/34 + 1/22 + 1/32 + 1/30 + 1/27 + 1/40 = 2.7827$

Time-based Efficiency for the Original website = $(2.7827) / (6 * 11) = 0.042 \text{ tasks/s}$

Prototype:

	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6
User 1	$n_{ij} = 1$ $t_{ij} = 12 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 28 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 13 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 18 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 19 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 44 \text{ s}$
User 2	$n_{ij} = 1$ $t_{ij} = 12 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 17 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 10 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 14 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 31 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 30 \text{ s}$
User 3	$n_{ij} = 1$ $t_{ij} = 18 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 10 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 13 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 12 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 6 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 19 \text{ s}$
User 4	$n_{ij} = 1$ $t_{ij} = 19 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 8 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 7 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 11 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 7 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 25 \text{ s}$
User 5	$n_{ij} = 1$ $t_{ij} = 21 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 16 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 14 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 12 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 13 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 17 \text{ s}$
User 6	$n_{ij} = 1$ $t_{ij} = 21 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 21 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 12 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 7 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 17 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 29 \text{ s}$

	Task 7	Task 8	Task 9	Task 10	Task 11
User 1	$n_{ij} = 1$ $t_{ij} = 19 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 53 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 16 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 30 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 15 \text{ s}$
User 2	$n_{ij} = 1$ $t_{ij} = 20 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 55 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 12 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 24 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 17 \text{ s}$
User 3	$n_{ij} = 1$ $t_{ij} = 21 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 49 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 4 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 5 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 15 \text{ s}$
User 4	$n_{ij} = 1$ $t_{ij} = 17 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 47 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 9 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 5 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 6 \text{ s}$
User 5	$n_{ij} = 1$ $t_{ij} = 24 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 48 \text{ s}$	$n_{ij} = 0$ $t_{ij} = 11 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 24 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 20 \text{ s}$
User 6	$n_{ij} = 1$ $t_{ij} = 25 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 49 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 8 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 22 \text{ s}$	$n_{ij} = 1$ $t_{ij} = 21 \text{ s}$

Table 6: Time-based efficiency for the Prototype website

Summation of n_{ij} and t_{ij} = $1/12 + 1/12 + 1/18 + 1/19 + 1/21 + 1/21 + 1/28 + 1/17 + 1/10 + 1/8 + 1/16 + 1/21 + 1/13 + 1/10 + 1/13 + 1/7 + 1/14 + 1/12 + 1/18 + 1/14 + 1/12 + 1/11 + 1/12 + 1/7 + 1/19 + 1/31 + 1/6 + 1/7 + 1/13 + 1/17 + 1/44 + 1/30 + 1/19 + 1/25 + 1/17 + 1/29 + 1/19 + 1/20 + 1/21 + 1/17 + 1/24 + 1/25 + 1/53 + 1/55 + 1/49 + 1/47 + 1/48 + 1/49 + 1/16 + 0/12 + 0/4 + 1/9 + 0/11 + 1/8 + 1/30 + 1/24 + 1/5 + 1/5 + 1/24 + 1/22 + 1/15 + 1/17 + 0/15 + 1/6 + 1/20 + 1/21 = 4.312$

$$\text{Time-based Efficiency for the Prototype website} = (4.312) / (6 * 11) = 0.065 \text{ tasks/s}$$

Effectiveness

Effectiveness refers to the accuracy and completeness with which users achieve their goals or tasks when interacting with a system or interface. It is a key usability metric that assesses the system's ability to support users in accomplishing their objectives. From the above tables 5 and 6, we can use the n_{ij} values to measure the successfully completed tasks. The formula for effectiveness is given by -

$$\text{Effectiveness (\%)} = (\text{Number of Successfully Completed Tasks}) / (\text{Total Number of Attempted Tasks}) \times 100$$

For our case:

- Original Website
 - Total Number of Successfully Completed Tasks = 50
 - Total Number of Attempted Tasks = 66
 - **Effectiveness = (50/60) * 100 = 75.8 %**
- Prototype Website
 - Total Number of Successfully Completed Tasks = 62
 - Total Number of Attempted Tasks = 66
 - **Effectiveness = (62/66) * 100 = 93.9%**

From the above we can see that there is an increase of **18.1%** in effectiveness using our prototype website

User Satisfaction

From the post-session surveys for each of the websites, we measured the overall usability rating on a Likert-scale. For this particular metric, we will be using the final question on the survey, which measures the frustration rating of the user. The following graphs show the frustration rating for each of the websites –

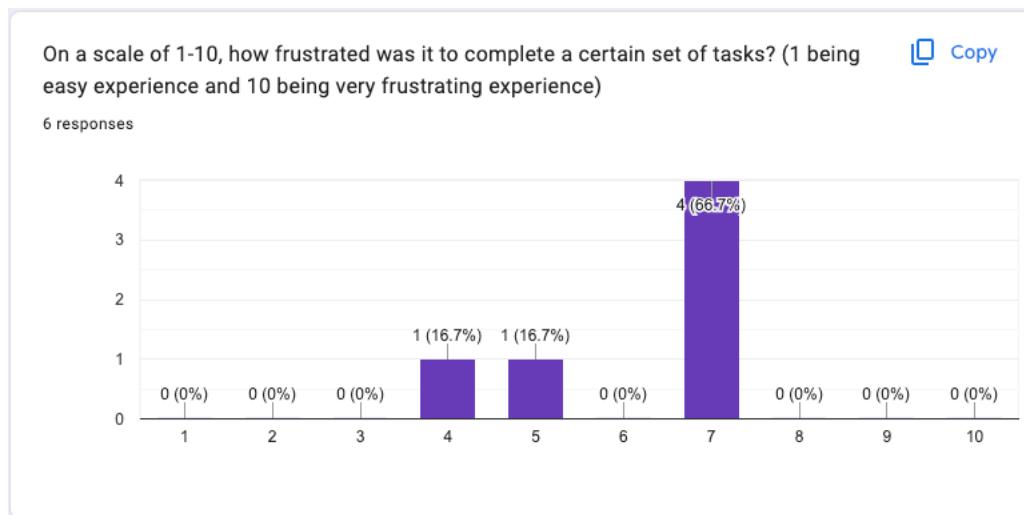


Figure. Frustration rating on the Original Website

On a scale of 1-10, how frustrated was it to complete a certain set of tasks? (1 being easy experience and 10 being very frustrating experience)

6 responses

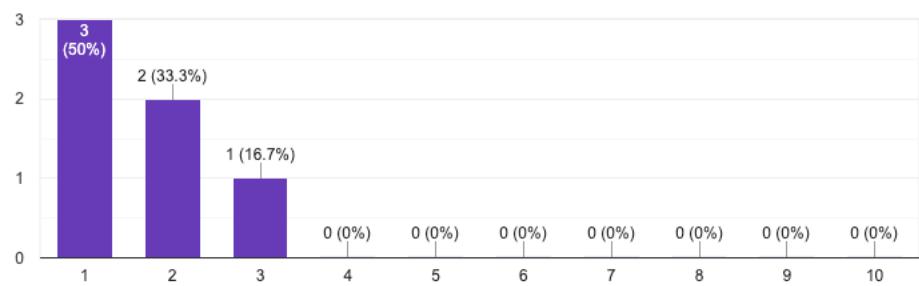


Figure. Frustration rating on the Prototype Website

For our case –

- **Original Website Mean Frustration Rating = $(7+7+7+7+5+4) / 6 = 6.167$**
- **Prototype Website Mean Frustration Rating = $(1+1+1+2+2+3) / 6 = 1.667$**

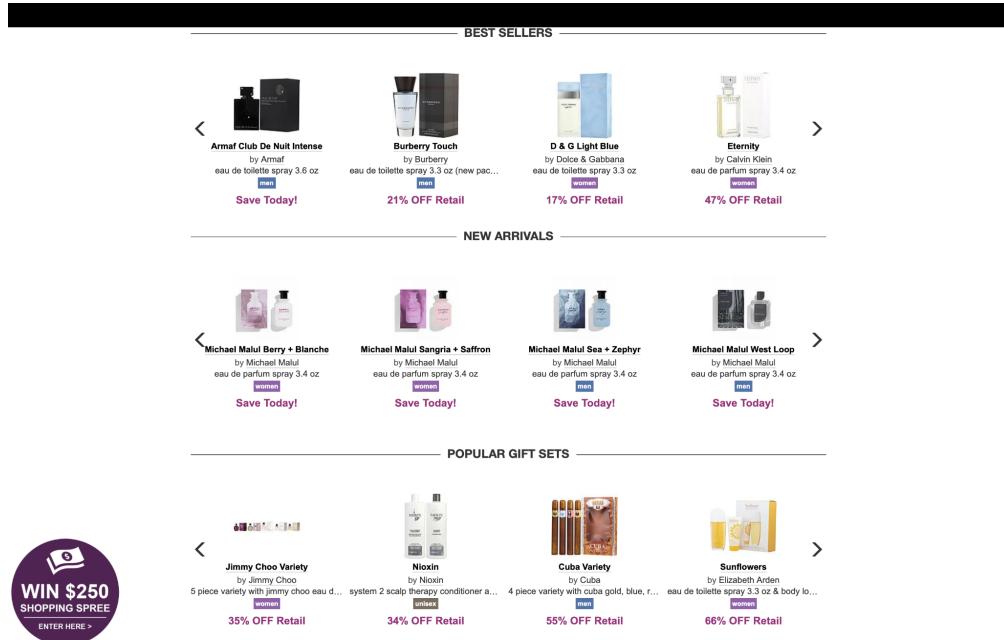
From the above comparison, we can see that the overall mean frustration rating on our prototype based on the user surveys is significantly lower than the overall mean frustration rating on the original website.

What improvements were made to the site

Shortcomings and changes are highlighted in red box in the screenshots.

Product pricing display:

The original site contains product listings displaying discount percentages rather than prices. This makes it harder for the user to identify the product based on the price bracket they're looking for.

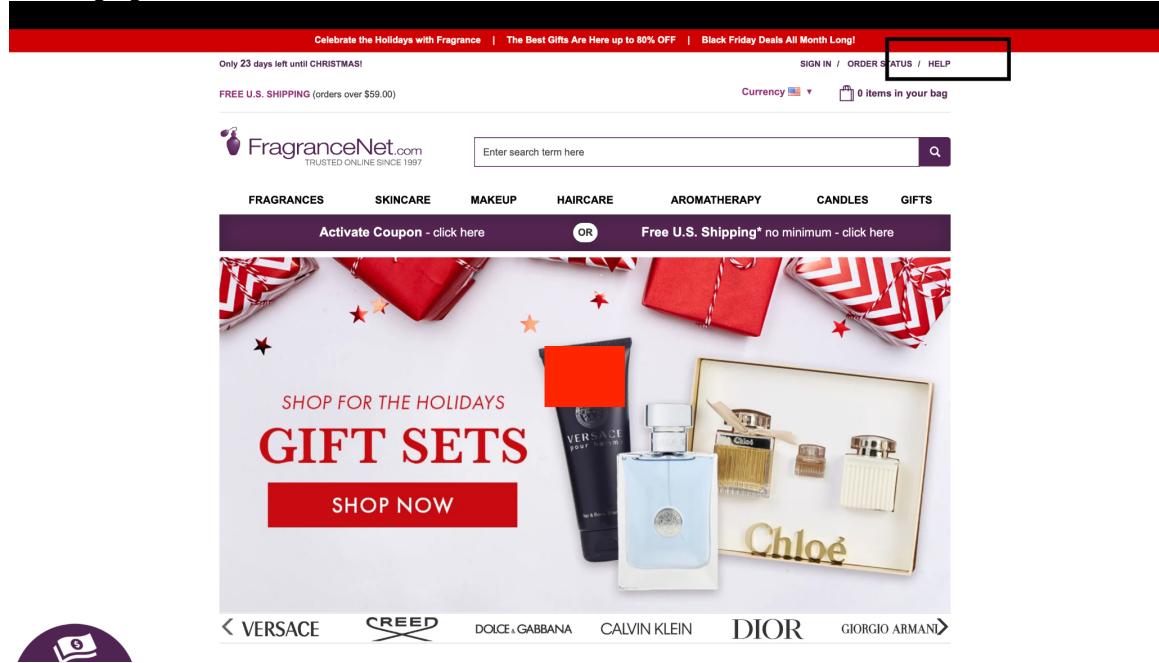


In the re-design, price is added on the product component so that it's visible with the product image and name. This helps the user grasp the price of the product without navigating to the specific product every time.

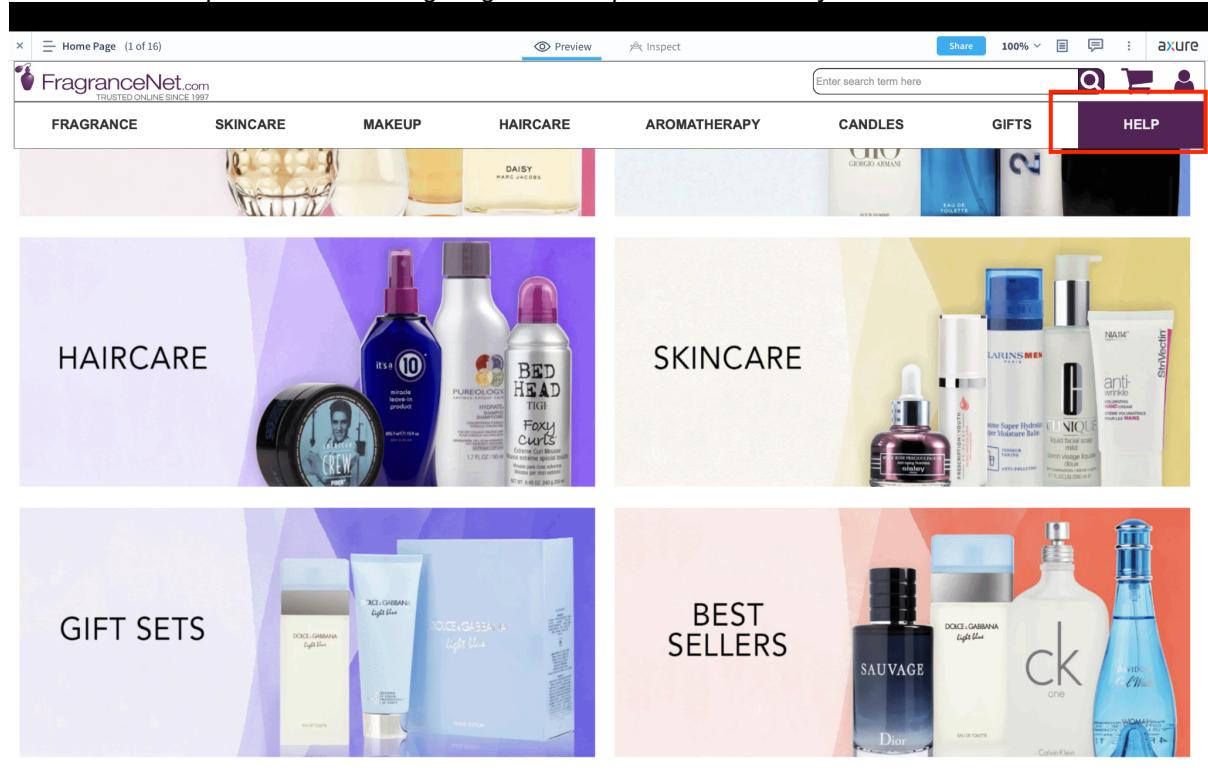
This screenshot shows the redesigned version of the FragranceNet.com website. The layout is similar to the original, with sections for "BEST SELLERS", "NEW ARRIVALS", and "POPULAR GIFT SETS". However, the product cards now display the full retail price followed by the discounted price and the discount percentage. For example, the first product in the "BEST SELLERS" section is "Armaf Club De Nuit Intense" by Armaf, described as "eau de toilette spray 3.3 oz", with a price of "\$41.99" and a discount of "47% OFF Retail". The top navigation bar includes links for Home Page, Preview, Inspect, Share, 100%, axure, and search functions. The main menu categories are FRAGRANCE, SKINCARE, MAKEUP, HAIRCARE, AROMATHERAPY, CANDLES, GIFTS, and HELP. A promotional banner on the left says "WIN \$250 SHOPPING SPREE ENTER HERE >".

Help button accessibility:

The font-size of the "help" button is small and is located at the far right corner, making it challenging to locate for first-time users.

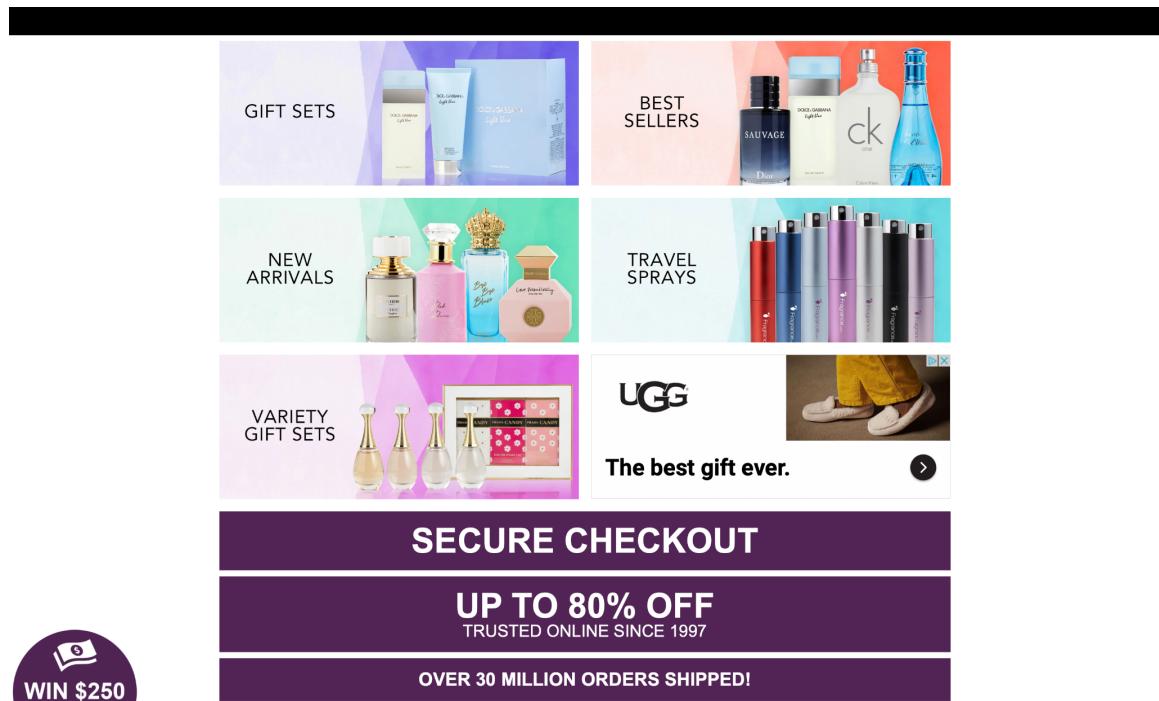


In the redesign, a Help button is added on the nav bar so that it's visible from any part of the website. This helps the user in navigating to the help section from anywhere.



Cart not intact with the webpage:

When the user scrolls down the page, the cart and the search bar is not intact at the top, and the user has to scroll all the way back up to access these sections.



In the re design, Cart is added on the nav bar so that it's visible from any part of the website. This helps the user in navigating to the cart section from anywhere.

The screenshot shows the same grid of promotional sections at the top, but the top navigation bar is now visible and includes a shopping cart icon highlighted with a red box. Below the navigation bar is a purple banner with the text "POPULAR GIFT SETS". Underneath are four product cards: "Gold shero by Burberry eau de toilette spray 3.3 oz" (\$41.99), "Burberry Collection II by Burberry eau de toilette spray 3.3 oz" (\$121.99), "Burberry Gift base by Burberry eau de toilette spray 3.3 oz" (\$41.99), and "Gold flosé by Burberry eau de toilette spray 3.3 oz" (\$59.99). At the bottom is a purple footer with the text "SUBSCRIPTION CLUB", "Learn More", and "Free U.S. Shipping".

Lack of product sorting options:

Unlike most e-commerce websites, the site at hand lacks the option to sort products based on price (low/high) and discount percentages (low/high)

This screenshot shows the original version of the FragranceNet.com website. At the top right, there is a 'SORT BY' dropdown menu, but it only lists sorting criteria such as 'Top Sellers', 'New Arrivals', 'Product', 'Brand Name', 'Review Count', and 'Star Rating'. There is no explicit option for sorting by price or discount.

In the re-design, users are able to sort the products based on the price with an additional sorting option that is introduced.

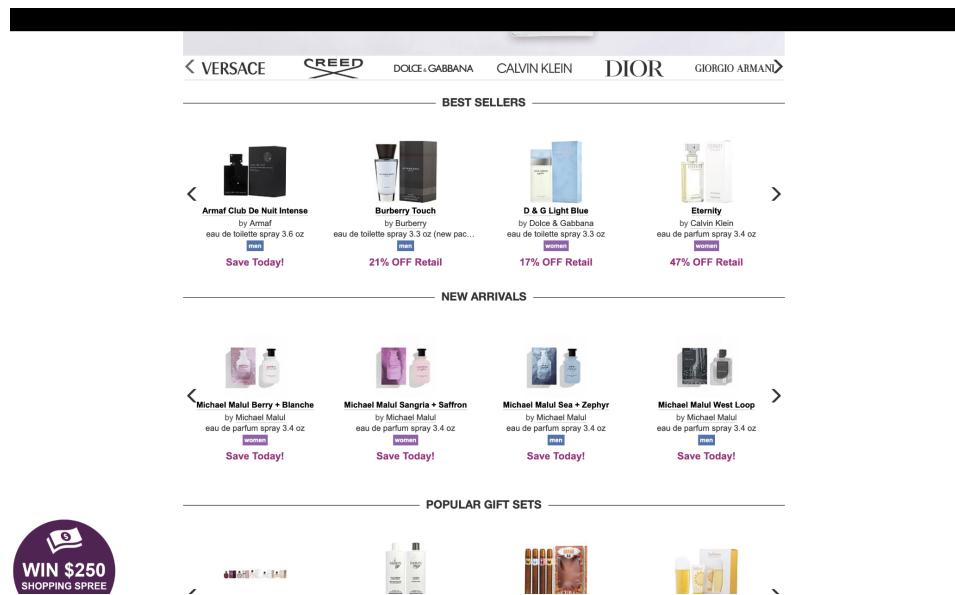
This screenshot shows the redesigned version of the FragranceNet.com website. The 'SORT BY' dropdown menu now includes an additional option: 'Price', which is highlighted with a red box. This indicates that the user interface has been updated to allow for sorting products by price, specifically offering the ability to sort from low to high.

Excess text: Each product displayed on the initial product listing page is filled with an egregious amount of text, making the site seem cluttered.

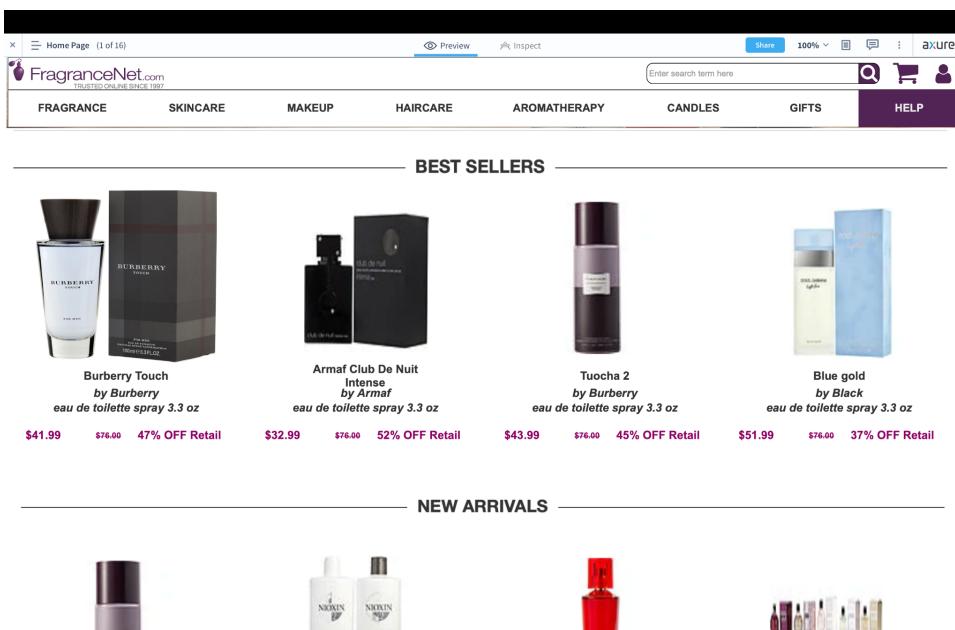
Small display pictures: The product listing page has extremely small pictures for the products, making it hard for the user to identify the product immediately.

Font-size and lack of contrast: Small font sizes and low-contrast cursor colors impact user interaction. For instance, the bold text and the highlighted text look similar even though they have separate functionalities.

Excess whitespace: The website has an excess amount of whitespace. This added real estate poses a great opportunity to make a more interactive experience by adding some usable functionalities.



In the re-design, all the above shortcomings have been fixed. Font readable, pictures are big enough, White space is removed.



In-Cart Functionality and Readability

With any e-commerce website, the cart to checkout phase is crucial. In the following example from the original website, we see that the “Proceed to Checkout” option is placed further down the page. Additionally, there’s a lack of structure and a lot of miscellaneous options presented that would ultimately confuse the user and prolong the checkout process.

SHOPPING BAG				
Photo	Description	Quantity	Our Price	Subtotal
	Escape by Calvin Klein eau de toilette spray 3.4 oz <small>Item# 122757</small>	<input type="button" value="1"/> <input type="button" value="remove"/>	Our Price \$40.99 After Coupon \$24.59	Our Price \$40.99 After Coupon \$24.59
	Nioxin by Nioxin system 2 scalp therapy conditioner and cleanser shampoo for natural hair with progressed thinning liter duo <small>Item# 231646</small>	<input type="button" value="1"/> <input type="button" value="remove"/>	Our Price \$59.99 After Coupon \$35.99	Our Price \$59.99 After Coupon \$35.99
Coupon applied 40% OFF your entire order				Save today!
TOP BEAUTY ADD-ONS!				
SUBSCRIPTION CLUB <small>Special Introductory Pricing</small> \$6.95 <small>for your 1st month (with monthly subscription)</small>	 Perfume Travel Atomizer Refillable Perfume Tr... <small>unisex</small> \$10.79	 Fragrance Beauty Accessories All In One Brush Set... <small>women</small> \$14.99 \$7.19	 Fragrance Beauty Accessories Blender Makeup Spoo... <small>women</small> \$12.00 \$4.79	This order qualifies for FREE U.S. SHIPPING
<input type="button" value="LEARN MORE"/>	<input type="button" value="ADD TO BAG"/>	<input type="button" value="ADD TO BAG"/>	<input type="button" value="ADD TO BAG"/>	Subtotal: \$60.58
<small>or 4 payments of \$15.14 with  or </small>				PROCEED TO CHECKOUT
SHOP CONFIDENTLY 30+ million orders shipped				
COUPON CODE Enter your code below <input type="text"/> <input type="button" value="Apply"/>				
				

In the redesign, we aimed to address the issue by providing the user with the option to checkout and apply coupon right next to the products in the cart. The following example shows that the cart to checkout page is less cluttered, more structured, and easy to access to proceed to checkout.

FragranceNet.com
TRUSTED ONLINE SINCE 1997

Enter search term here

FRAGRANCE SKINCARE MAKEUP HAIRCARE AROMATHERAPY CANDLES GIFTS HELP

Activate Coupon Click here to Subscribe Free U.S. Shipping*

Home / Shopping Bag

SHOPPING BAG

Photo	Description	Quantity	Our Price	Subtotal
	Escape by Calvin Klein eau de toilette spray 3.4 oz <small>[m] Item# 12275</small>	1	\$40.99	\$40.99
	Nioxin by Nioxin system 2 scalp therapy conditioner and cleanser shampoo for natural hair with progressed thinning liter duo <small>[u] Item# 231646</small>	1	\$59.99	\$59.99

This order qualifies for **FREE U.S. SHIPPING**

Purchase Summary

Enter Coupon Code Here

Items Subtotal: \$100.98
Estimated Tax: \$8.08

TOTAL: \$109.06
Or 4 payments of \$25.25 with or

PROCEED TO CHECKOUT

<< CONTINUE SHOPPING

Form Errors:

The website fails to display all errors in a form simultaneously, potentially causing users to overlook multiple errors before submitting.

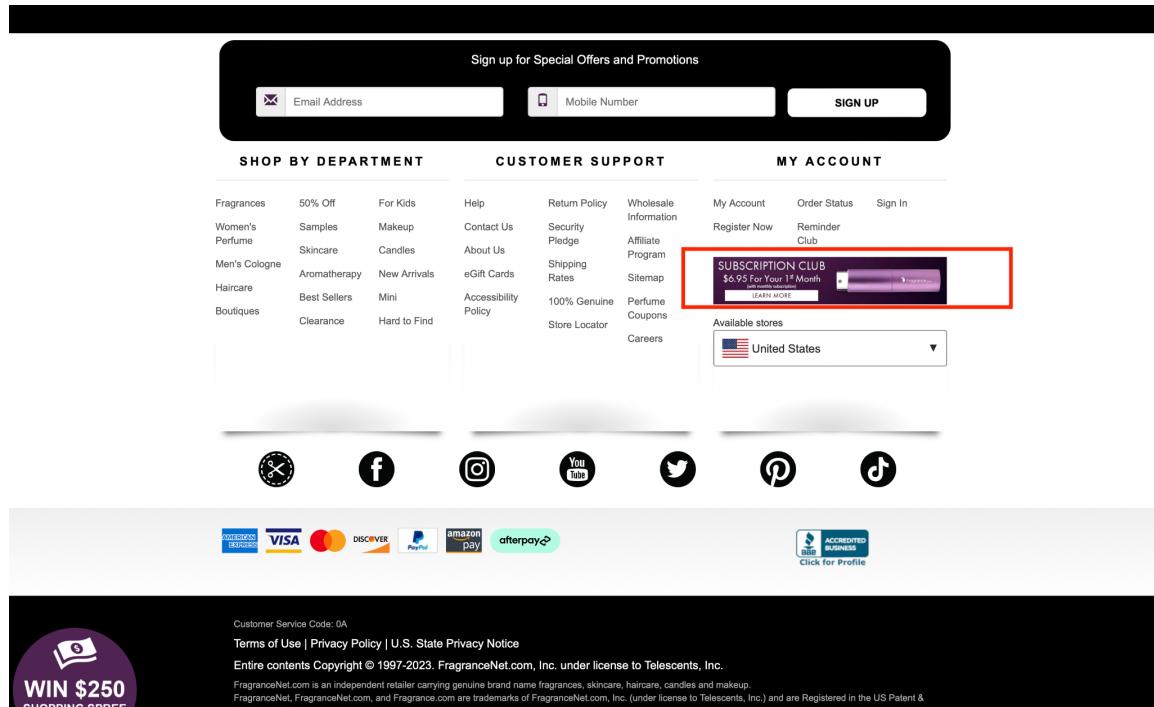
This screenshot shows a 'Shipping Address' form on a website. The form includes fields for Country, First Name, Last Name, Address Line 1, Address Line 2, Zip/Postal Code, City, State/Province, and Mobile Number. A 'Required Field' validation message is displayed above the Country field. An error message 'Fill out this field' is shown in a callout bubble over the Last Name field. Below the form, there are checkboxes for receiving updates and for marking the Billing Address as the same as the Shipping Address. To the right of the form, there is a sidebar with currency selection, item subtotal (\$59.99), a safe & secure checkout section, a 30-day return policy, and privacy terms links.

In the re-design, the website displays all the errors simultaneously, making it easier for the user to correct errors at the same time.

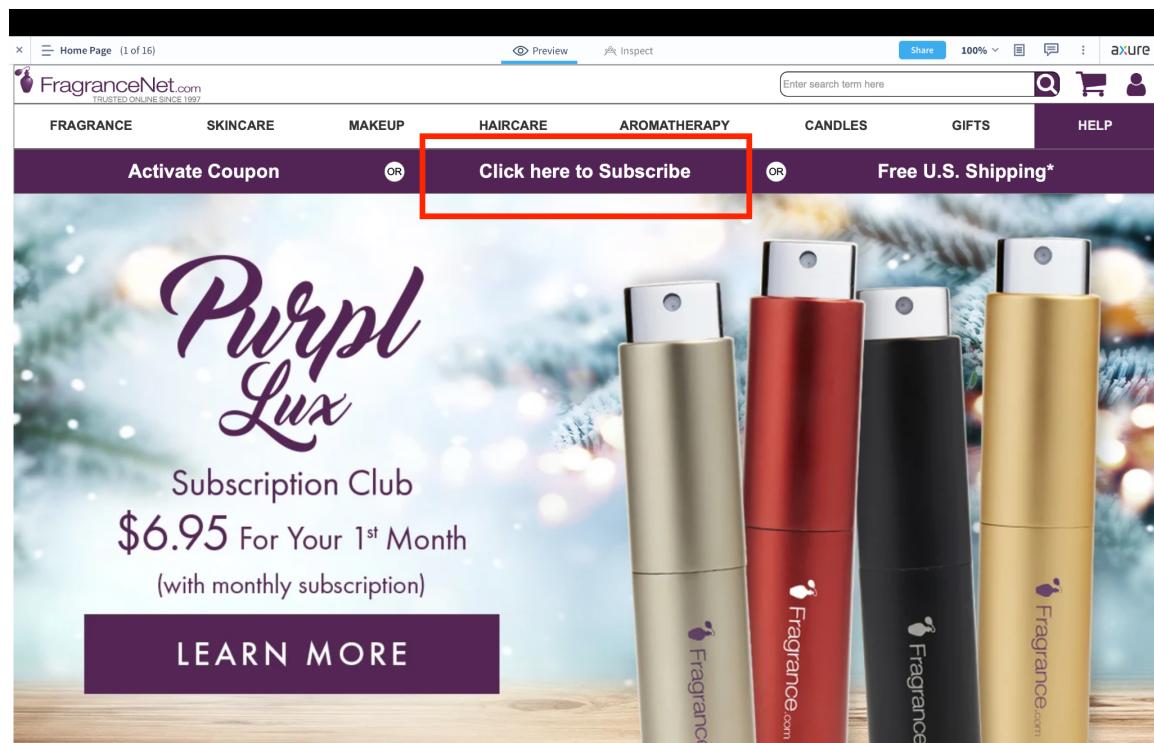
This screenshot shows the same 'Shipping Address' form after redesign. The layout is identical to the original, but now all error messages are displayed simultaneously below their respective input fields. The 'Last Name' field is highlighted in red, indicating it is required. The other fields (Country, First Name, Address Line 1, Address Line 2, Zip Code, City, State/Province, and Mobile Number) are also highlighted in red, suggesting they are either required or have other validation errors. The sidebar on the right remains the same, providing additional information and links.

Subscriptions Button:

The user has to scroll mid way through the homepage to find this option.

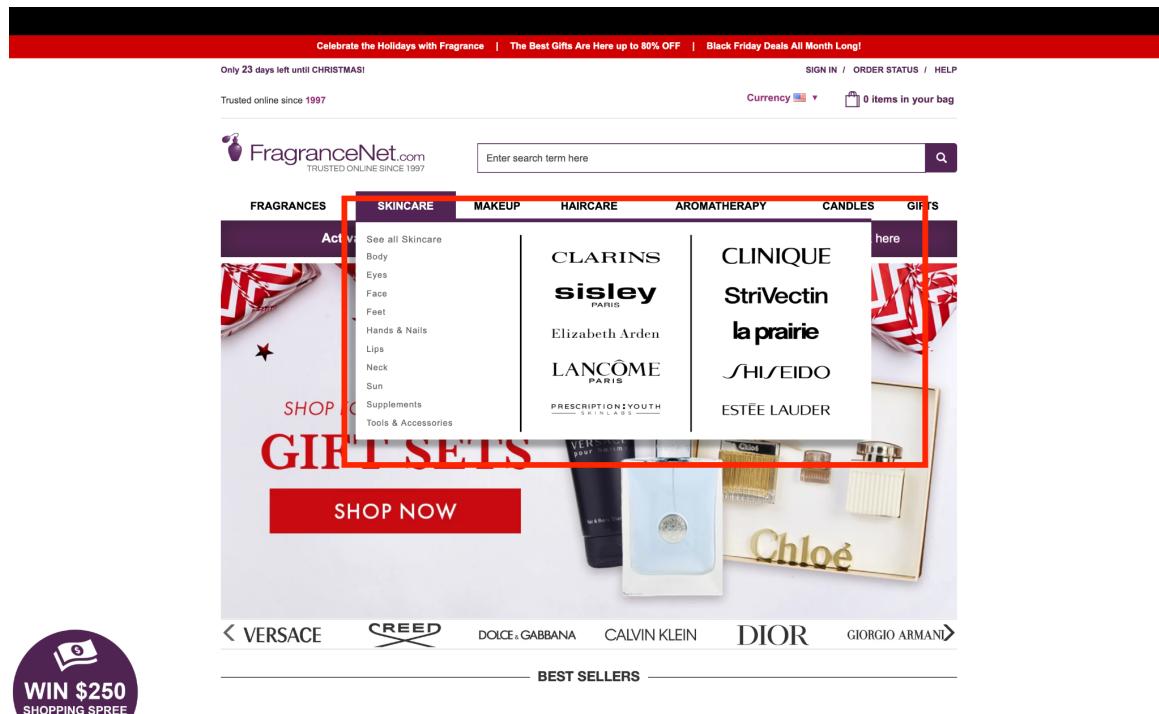


In the redesign, the subscription button is moved to navbar. This makes the user navigate to the Subscription page easily from anywhere.

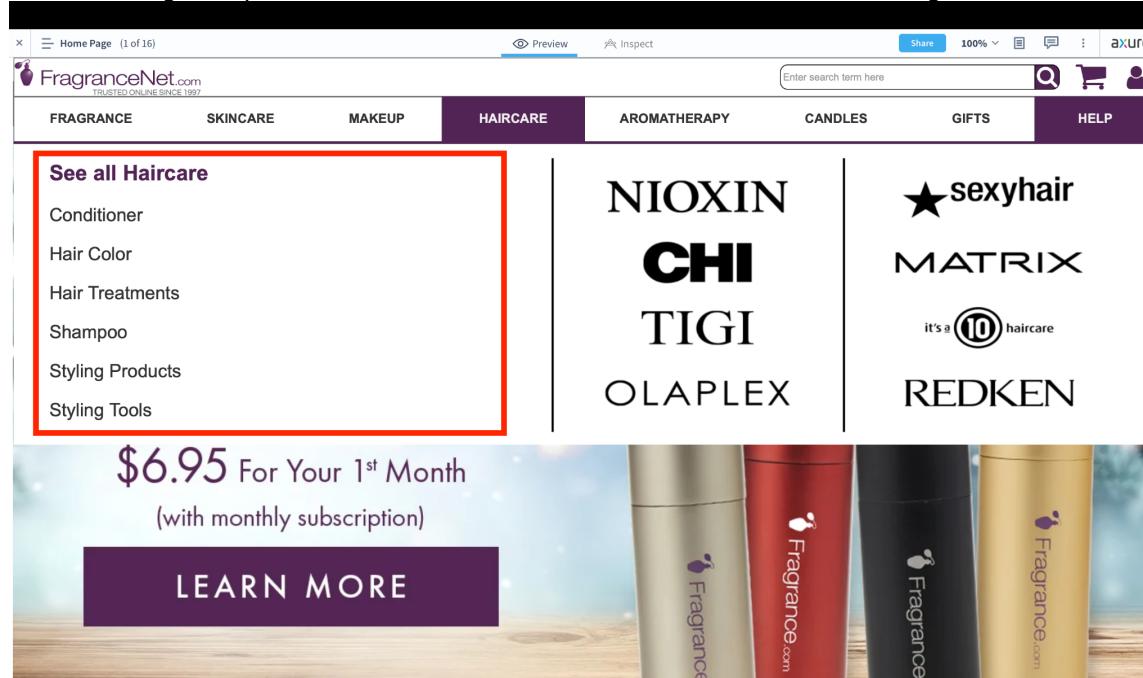


Dropdown menu:

The dropdown menus of 'Fragrances', 'Skincare', 'Makeup', and 'Haircare' are poorly designed. The product categories are very small in size and the brands appear bigger in size. This leads to confusion for the users, who are interested in the product and not the brand.



In the re design, dropdown menus have clear distinction from brands and categories.



Overall Findings & Recommendations: Organized by Tasks

Task #1

Task - Locate search bar and search for product.

Number of participants	12
% successful	100%

Finding 1: In the original website, the navbar was not sticky, so in order to search for a product, years would have to scroll up to the top of the page. By making the navbar sticky, the users were always able to find the navbar, irrespective of where they were at any page.

Finding Screenshot:

The screenshot shows a web page with a navigation bar at the top. Below the bar, there are three main sections: 'NEW ARRIVALS', 'POPULAR GIFT SETS', and another 'NEW ARRIVALS' section. Each section contains four product cards. A blue callout box on the right side of the page states: 'The navbar is not visible when the user is not at the top of the page.'

Figure. Original Website

Redesigned Screenshot:

The screenshot shows a web page with a navigation bar at the top that remains fixed as the user scrolls. Below the bar, there are two main sections: 'NEW ARRIVALS' and 'POPULAR GIFT SETS', each containing four product cards. A blue callout box on the right side of the page states: 'The navbar is sticky, i.e., always visible throughout the page.'

Figure. Prototype Website

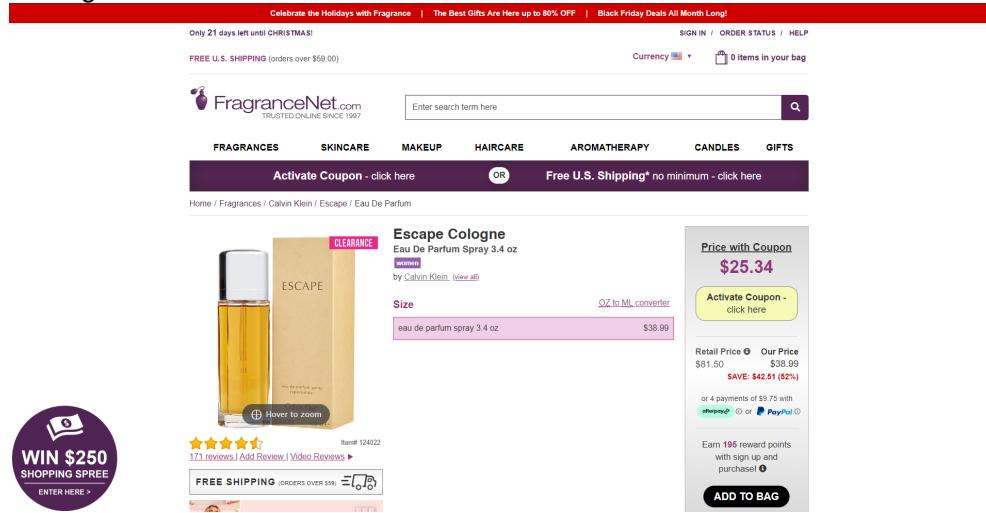
Task #2

Task - Add first product to the bag.

Number of participants	12
% successful	100%

Finding 2: In the original website, because of the whitespaces, all the icons are small in size. Trying to find the add to bad button seemed to be challenging at first. By removing the whitespaces in the prototype, we were able to increase the effective size of all icons so they would be easier to find.

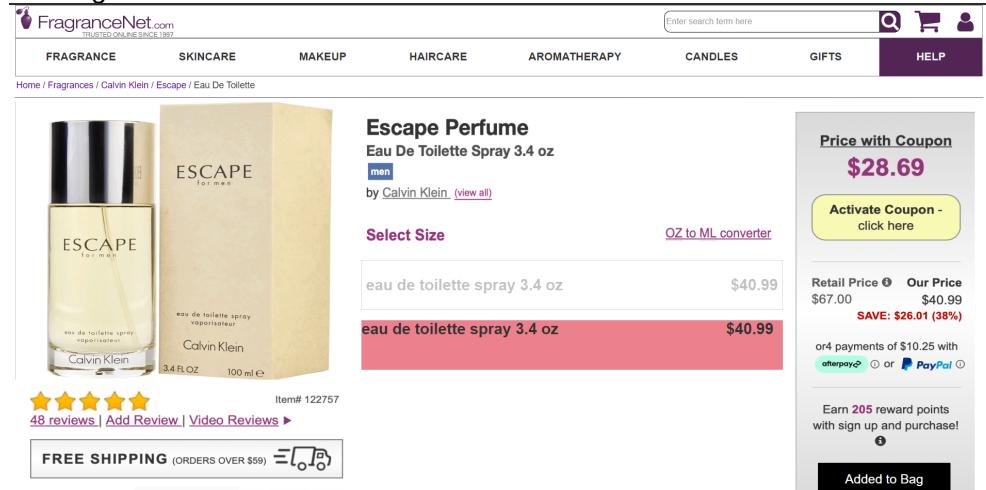
Finding Screenshot:



Add to bag button is relatively small and not so easy to find.

Figure. Original Website

Redesigned Screenshot:



Increased the size of the add to bag button so its easier to detect.

Figure. Prototype Website

Task #3

Task - Locate navigation bar:

Number of participants	12
% successful	100%

Finding 1: In the original website, the icons in the navbar quite small in size, making it difficult to find a particular category of products. We increased the size of the font to improve the readability, and made the dropdown uniform so the design stays consistent.

Finding Screenshot:

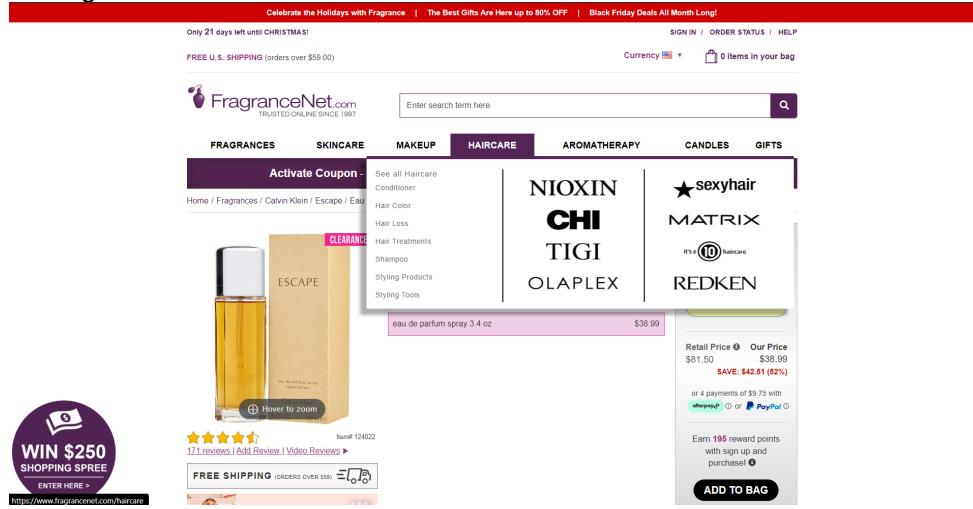
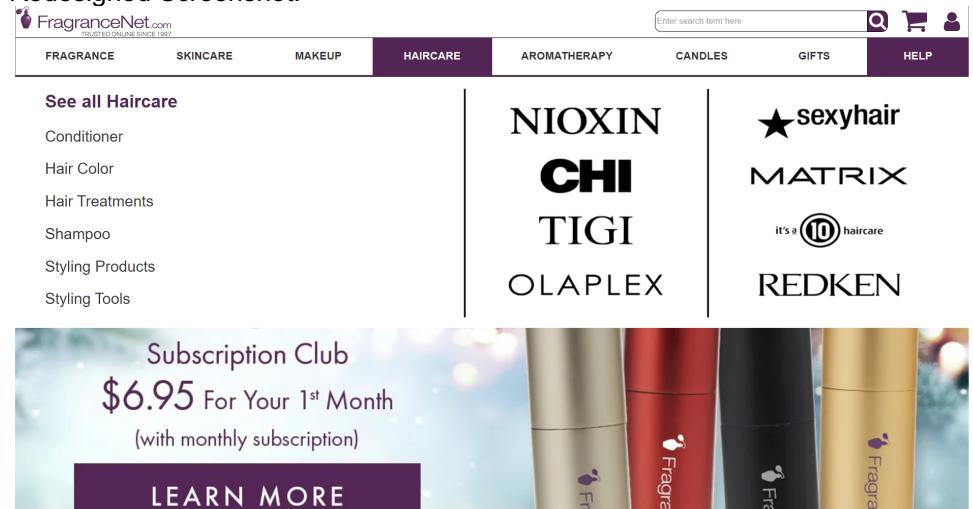


Figure. Original Website

Hard to locate conditioners in haircare section.

Redesigned Screenshot:



Increased the font size and made the dropdown more uniform.

Figure. Prototype Website

Task #4

Task – Sort the item by price:

Number of participants	12
% successful	50%

Finding 1: In the original website, there was no option to sort the result items by price, making it very difficult to purchase something when you're in a tight budget. We added the sort by price feature to give the users more control.

Finding Screenshot:

Celebrate the Holidays with Fragrance | The Best Gifts Are Here up to 50% OFF | Black Friday Deals All Month Long!

Only 21 days left until CHRISTMAS! SIGN IN / ORDER STATUS / HELP

FREE U.S. SHIPPING (orders over \$59.00) Currency: 0 Items in your bag

FragranceNet.com TRUSTED ONLINE SINCE 1997

Enter search term here

FRAGRANCES SKINCARE MAKEUP HAIRCARE AROMATHERAPY CANDLES GIFTS

Activate Coupon - click here OR Free U.S. Shipping* no minimum - click here

Home / Haircare / Conditioner

Conditioner

1316 ITEMS FOUND

REFINE YOUR SELECTION

Category

- Daily (43)
- Detangling (10)
- Leave In (121)
- Smoothing (100)
- Straightening (1)
- Thinning (106)
- Volumizing (61)

Gender

- Children (1)
- Men (41)
- Unisex (1203)
- Women (73)

YOUR SELECTIONS:

SORT BY

Leave your hair soft, shiny and manageable. We offer a large selection of brand name conditioners for dry, damaged, short, long color treated and fine hair. Everything from smoothing, volumizing, frizz-free, hydrating and more.

NIOXIN NIOXIN NIOXIN OLAPLEX K18

Figure. Original Website

No option to sort the result by price

Redesigned Screenshot:

Celebrate the Holidays with Fragrance | The Best Gifts Are Here up to 50% OFF | Black Friday Deals All Month Long!

Only 21 days left until CHRISTMAS! SIGN IN / ORDER STATUS / HELP

FREE U.S. SHIPPING (orders over \$59.00) Currency: 0 Items in your bag

FragranceNet.com TRUSTED ONLINE SINCE 1997

Enter search term here

FRAGRANCES SKINCARE MAKEUP HAIRCARE AROMATHERAPY CANDLES GIFTS

Activate Coupon OR Click here to Subscribe OR Free U.S. Shipping*

Home / Haircare / Conditioner

Conditioner

1326 ITEMS FOUND

REFINE YOUR SELECTION

Category

- Daily (45)
- Detangling (10)
- Leave In (74)
- Smoothing (100)
- Straightening (1)
- Thinning (107)
- Volumizing (43)

Gender

- Children (1)
- Men (40)
- Unisex (1206)
- Women (73)

Brand

Click a letter to find haircare

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Figure. Prototype Website

Added sort by pricing as a feature.

Task #5

Task - Add a second product to the bag.

Number of participants	12
% successful	100%

Finding 1: In the original website, the page was cramped with too much unnecessary information, affecting the user's decision-making process. By removing the unnecessary information, we made the web page cleaner for the user.

Finding Screenshot:

SHOPPING BAG

The screenshot shows a shopping cart page with two items: a Calvin Klein Escape perfume and a Nioxin hair care duo. A coupon applied message shows a 40% discount. Below the cart are sections for 'TOP BEAUTY ADD-ONS' featuring a subscription club, perfume travel atomizers, fragrance beauty accessories, and fragrance net beauty accessories. To the right, there's a note about free shipping, a subtotal of \$60.58, payment options (Afterpay and PayPal), and a 'PROCEED TO CHECKOUT' button. A large blue callout box on the right side highlights the 'Extraneous and cluttered option presented to proceed to checkout'.

Figure. Original Website

Redesigned Screenshot:

The redesigned shopping cart page has a similar structure but with fewer distractions. It shows the same two items and a coupon applied message. The 'TOP BEAUTY ADD-ONS' section is removed. Instead, there are links for 'Activate Coupon', 'Click here to Subscribe', and 'Free U.S. Shipping*'. The right side features a 'Purchase Summary' box with a coupon input field and payment options. A large blue callout box on the right side highlights the 'Simplified process to proceed to checkout'.

Figure. Prototype Website

Task #6

Task - Locate and select the shopping cart, and activate coupon.

Number of participants	12
% successful	83.33%

Finding 1: In the original website, the shopping cart icon is small and present near the top right corner of the page. To see the shopping cart icon the user has to be at the top of the page. We added the shopping cart icon to the sticky nav bar and increased its size.

Finding Screenshot:

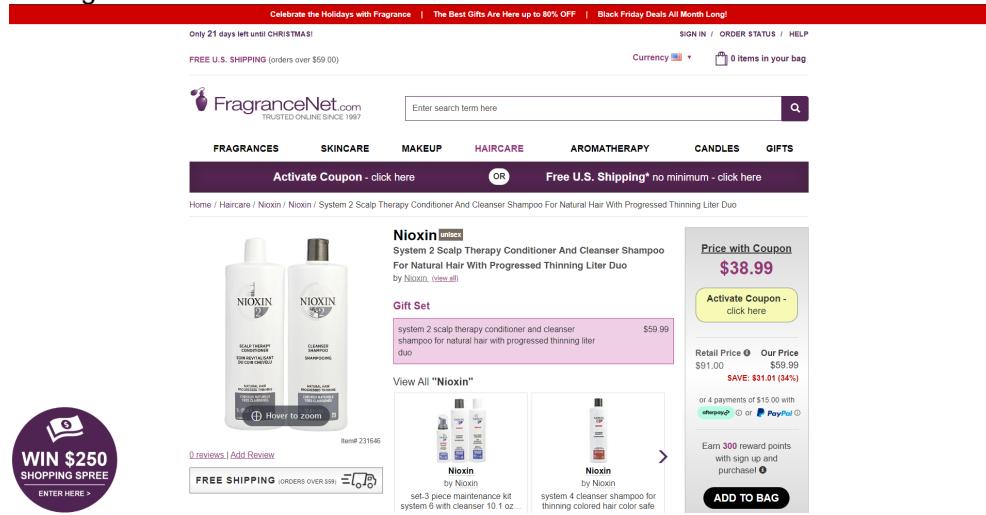


Figure. Original Website

Its difficult to
find the
shopping
cart as its
small and
not
accessible
unless the
user is at top
of page

Redesigned Screenshot:

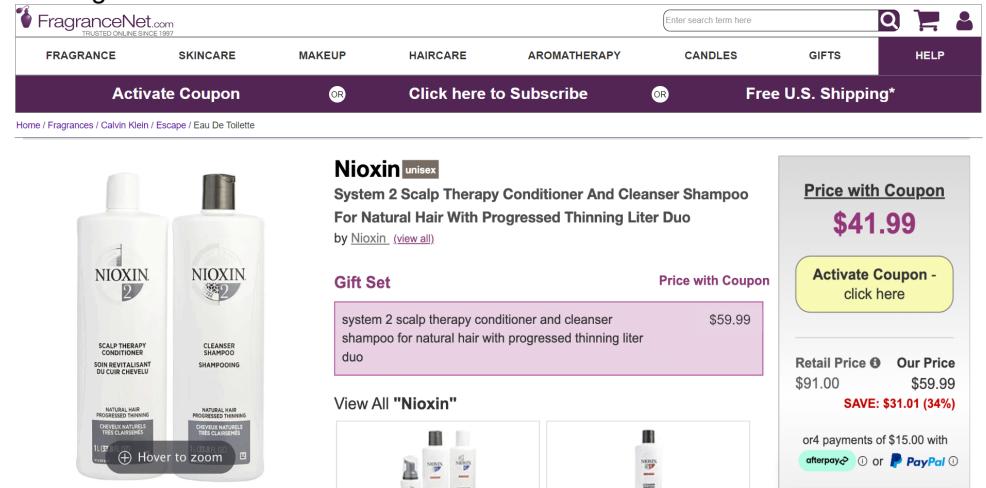


Figure. Prototype Website

Increased its
size and
added it to
the sticky
nav bar for
easy access.

Task #7

Task - Checkout as guest.

Number of participants	12
% successful	100%

Finding 1: In the original website, hints were absent in the textboxes. This would cause novice users to struggle a bit in order to understand what data to type in the textboxes. We added hints in the textboxes, so that even novice users can use the website comfortably.

Finding Screenshot:

The screenshot shows the original FragranceNet.com checkout page. It features a logo and navigation links for "Secure Checkout" and "Need Help?". The main area has two sections: "Checkout as guest" and "or sign in to your account". Both sections have "Email Address *" and "Password *" fields. The "Email Address" field in the guest section does not contain any placeholder text. The "Password" field in the account section also lacks a placeholder. Below each section are "CHECKOUT AS GUEST" and "SIGN IN AND CHECKOUT" buttons respectively.

No hints provided for Email and Password. Increased chances for errors.

Figure. Original Website

Redesigned Screenshot:

The screenshot shows the redesigned FragranceNet.com checkout page. The layout is identical to the original, with sections for "Checkout as guest" and "or sign in to your account". In the "Email Address *" field of the guest section, the placeholder text "abc@xyz.com" is visible. In the "Password" field of the account section, the placeholder text "Password" is visible. The "CHECKOUT AS GUEST" and "SIGN IN AND CHECKOUT" buttons are present at the bottom of their respective sections.

Added hints for Email and Password to decrease errors.

Figure. Prototype Website

Task #8

Task - Submit forms and check how easy it is to resolve errors.

Number of participants	12
% successful	75%

Finding 1: In the original website, when the user tries to submit a form with multiple errors, the page only shows one error at a time. This takes a lot of tries before fixing all the errors wasting time of the user. In the redesign, the page highlights all the fields as red where there should be error, making it easy to correct their mistakes in one try.

Finding Screenshot:

The screenshot shows the FragranceNet.com checkout process at step 2, "Address Information". The "First Name" field is highlighted in red with the error message "Please fill out this field." Other fields like "Last Name", "Address Line 1", "Address Line 2", "Zip/Postal Code", "City", and "State/Province" are also present but not highlighted. To the right, the "Order Summary" shows an subtotal of \$69.99. A blue callout box on the right side states: "After trying to submit the form without any input, the form only shows one error at a time".

Figure. Original Website

Redesigned Screenshot:

The screenshot shows the same checkout process as the original, but with a design change. All fields that contain errors ("First Name", "Last Name", and "Address Line 1") are now highlighted in red. The "Order Summary" section remains the same. A blue callout box on the right side states: "All the fields with errors are highlighted in one go."

Figure. Prototype Website

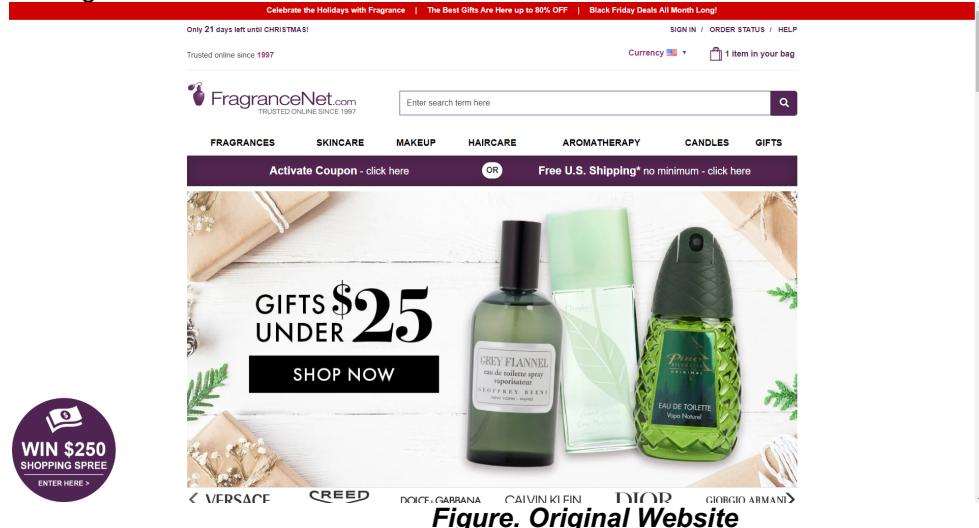
Task #9

Task - Locate the Help button.

Number of participants	12
% successful	41.67%

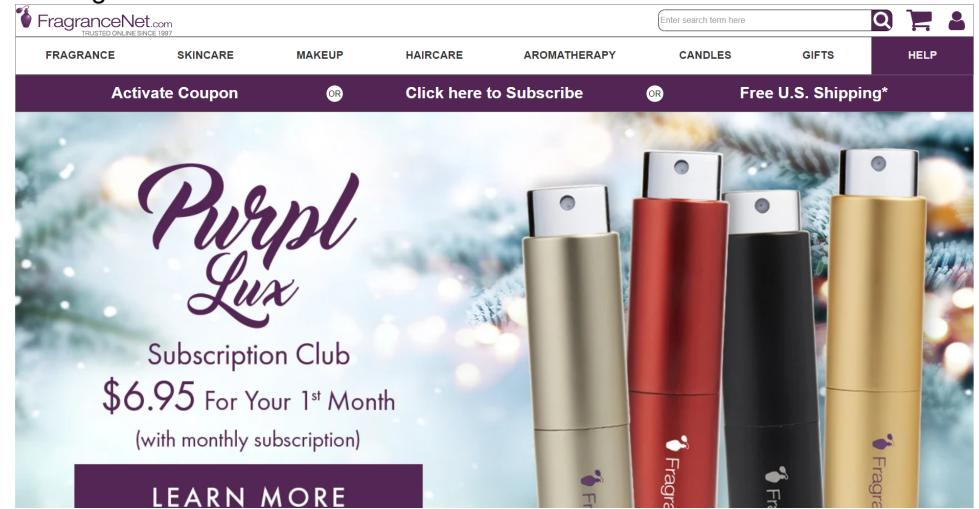
Finding 1: In the original website, the help button was very small and difficult to find. The user has to be either at the top of the page or at the bottom of the page to find this. Most of the users were not able to finish this task because of this. In the redesign we increased the size of the button and added it to the sticky navbar for easy access.

Finding Screenshot:



The size of help is extremely small, making it difficult to locate

Redesigned Screenshot:



Added help button to the nav bar, with its size increased helping with easy access.

Figure. Prototype Website

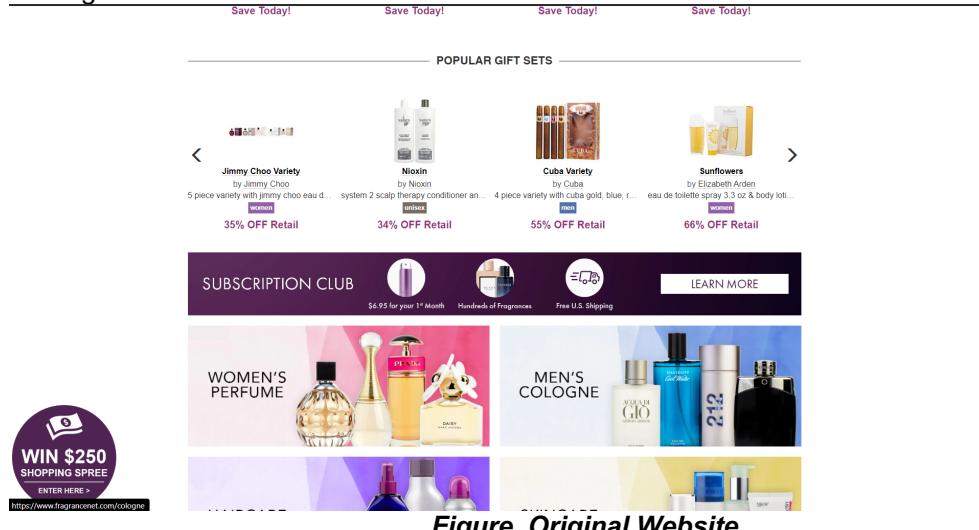
Task #10

Task - Locate and select Subscription Club.

Number of participants	12
% successful	91.67%

Finding 1: In the original website, to get to subscription page, the user would have to scroll down a bit or go to the footer section of the page, even at both those places its relatively difficult to locate because of its size. We added a click to subscribe button at the top of the page just below the nav bar so it's easier to locate.

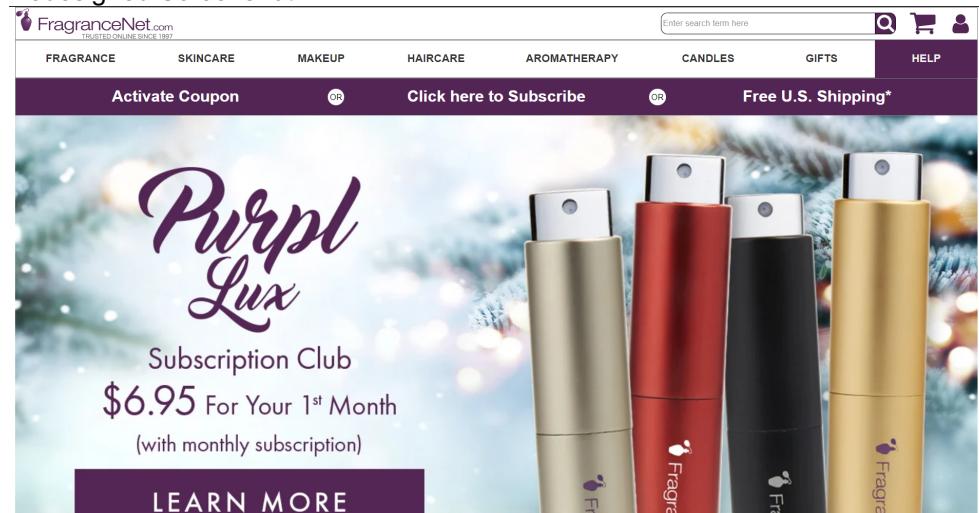
Finding Screenshot:



After scrolling down a bit, the subscription section is visible

Figure. Original Website

Redesigned Screenshot:



Added the Click here to subscribe button just below the nav bar so its easier to find.

Figure. Prototype Website

Task #11

Task - Subscription Club page.

Number of participants	12
% successful	91.67%

Finding 1: The original webpage had small font sizes and lots of empty spaces which were uncomfortable for the user. We redesigned the webpage and made the font sizes bigger and made optimal use of the empty spaces. As a result, text legibility was improved and users felt more comfortable in using the website.

Finding Screenshot:

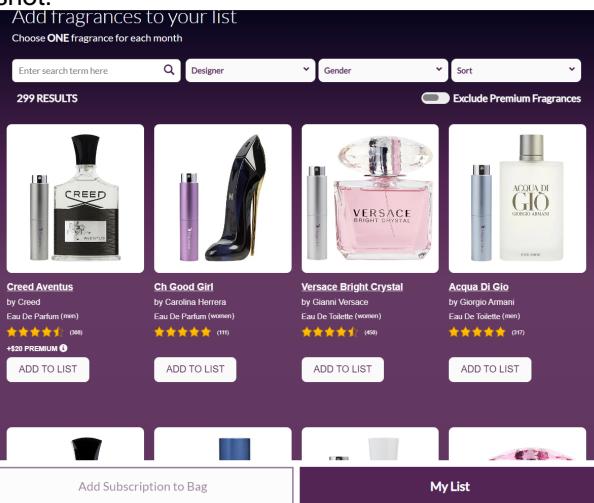
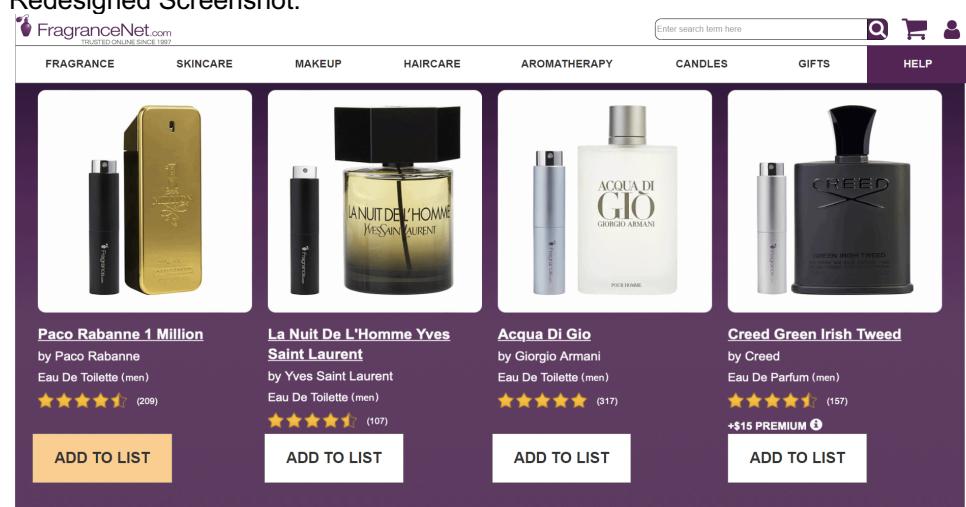


Figure. Original Website

Easy to add products to subscription list. Small font size and increased space causes the user to spend extra time on the page.

Redesigned Screenshot:



Redesigned to fill in the extra spaces and improve the text legibility.

Figure. Prototype Website

Findings and Recommendations:

Task	Sample Findings	Sample Recommendations
Task 1	<ol style="list-style-type: none"> 1. All participants had difficulty completing the Task due to the inconsistent navigation menu. 2. Participants are expected to see Navigation menu from any part of the website. 	<ol style="list-style-type: none"> 1. Redesigned the navigation menu to stick to the top of the page to provide access to it from any part of the page.
Task 2	<ol style="list-style-type: none"> 1. All participants had difficulty completing the Task due to the small sized icons. 2. The site looked very inconsistent with white spaces which confused the users. 	<ol style="list-style-type: none"> 1. Redesigned scaling of the page to fit the screen using extra screen space to increase the size of the icons. 2. Ensured “Add to bag” is easy to identify
Task 3	<ol style="list-style-type: none"> 1. All participants had difficulty completing the Task due to the small sized category text. 2. Drop down looked very inconsistent with oddly formatted font sizes. 	<ol style="list-style-type: none"> 1. Redesigned scaling of the navigation drop down to fit the screen using extra screen space to increase the size of the category text. 2. Ensured all the text elements are easy to read
Task 4	<ol style="list-style-type: none"> 1. All participants failed to complete the Task due to no sort by price functionality. 2. Participants expected to see an option to sort by price. 	<ol style="list-style-type: none"> 1. Added “sort by price” functionality in the products page. 2. Ensured users are easily able to sort the products based on price by selecting “price” from sort dropdown
Task 5	<ol style="list-style-type: none"> 1. All participants had difficulty completing the Task due to unnecessary clutter in the checkout page. 2. The site looked very inconsistent with lot of add-ons and other information 	<ol style="list-style-type: none"> 1. Redesigned the checkout page to clean up the clutter. 2. Ensured that proceed to checkout option is easily visible and there is no confusion for the users to go to next page.
Task 6	<ol style="list-style-type: none"> 1. All participants had difficulty completing the Task due to small size of cart icon and had to scroll all the way up to find it. 	<ol style="list-style-type: none"> 1. Redesigned the navigation menu to stick to the top of the page to provide access to it from any part of the page and added cart button to it.

	<p>2. Participants expected to see the cart option to be visible from any point of the page.</p>	<p>2. Ensured users are able to find the cart button easily from any part of the website</p>
Task 7	<p>1. All participants had difficulty completing the Task due to confusion on exact information was needed to checkout as guest</p> <p>2. Participants expected some hints to help them proceed</p>	<p>1. Redesigned the forms to include hints of what users can enter to proceed</p> <p>2. Ensured users are able to easily understand what needs to be entered in the specific section of the form</p>
Task 8	<p>1. All participants had difficulty completing the Task due to non simultaneous display of errors in the address information page</p> <p>2. Participants expected display of all errors at the same time.</p>	<p>1. Redesigned the forms to show all the errors simultaneously</p> <p>2. Ensured users are able to easily identify and fix all the errors</p>
Task 9	<p>1. All participants had difficulty completing the Task due to small size of help button and had to scroll all the way up to find it.</p> <p>2. Participants expected to see the help option to be visible from any point of the page.</p>	<p>1. Redesigned the navigation menu to stick to the top of the page to provide access to it from any part of the page and added help button to it.</p> <p>2. Ensured users are able to find the help button easily from any part of the website</p>
Task 10	<p>1. All participants had difficulty completing the Task because it took a while for them to find the subscription button.</p> <p>2. Participants expected to see the subscription option to be visible from any point of the page.</p>	<p>1. Redesigned the navigation menu to stick to the top of the page to provide access to it from any part of the page and added subscription button to it.</p> <p>2. Ensured users are able to find the subscription button easily from any part of the website</p>
Task 11	<p>1. All participants had difficulty completing the Task due to unnecessary clutter in the subscription page and the small size of text and icon.</p> <p>2. The site looked very inconsistent with cramped up product information</p>	<p>1. Redesigned the subscription page to clean up the clutter, rescaled the page to fit the screen to use the extra space to increase icon and text size.</p> <p>2. Ensured that participants are able to read and identify product details without much effort in the subscription page.</p>

Statistical Analysis:

Total Time Spent	Original Website	Prototype
Mean	309.67	255.83
Standard Deviation	33.86	26.16

From the paired t-test evaluated for the total time spent on the website, we obtained a p-value of 0.0047 and a t-value of 4.8338. Based on these obtained values, referring to the conventional criteria, the p-value indicates that difference for total time spent between the original website and the prototype is very statistically significant. This signifies that the conversion rate for a user to add products and proceed to checkout has improved significantly with our prototype.

Time on Task	Original Website	Prototype
Mean	27.00	19.36
Standard Deviation	13.55	11.23

From the paired t-test evaluated for the time-on-task metric, we obtained a p-value of 0.1606 and a t-value of 1.5156. Based on these obtained values, referring to the conventional criteria, the p-value indicates that difference for time-on-task between the original website and the prototype is not statistically significant.

Time-based Efficiency	Original Website	Prototype
Mean	0.0421	0.0652
Standard Deviation	0.0332	0.0241

From the paired t-test evaluated for the time-based efficiency metric, we obtained a p-value of 0.0772 and a t-value of 1.9699. Based on these obtained values, referring to the conventional criteria, the p-value indicates that difference for time-based efficiency between the original website and the prototype is not statistically significant.

Effectiveness	Original Website	Prototype
Mean	0.7573	0.9391
Standard Deviation	0.3448	0.1543

From the paired t-test evaluated for the effectiveness metric, we obtained a p-value of 0.0967 and a t-value of 1.8333. Based on these obtained values, referring to the conventional criteria, the p-value indicates that difference for effectiveness between the original website and the prototype is not statistically significant.

User Satisfaction	Original Website	Prototype
Mean	1.67	6.17
Standard Deviation	0.82	1.33

From the paired t-test evaluated for the user satisfaction metric, we obtained a p-value of 0.0001 and a t-value of 7.0662. Based on these obtained values, referring to the conventional criteria, the p-value indicates that difference for user satisfaction between the original website and the prototype is extremely statistically significant. This stat shows that the experience of using the prototype is more intuitive than the original website.